



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
UNDERGROUND INJECTION CONTROL PERMIT:
CLASS I COMMERCIAL HAZARDOUS

Permit Number: MI-163-1W-C007

Well Name: Well #1-12

Pursuant to the Safe Drinking Water Act and Underground Injection Control regulations of the United States Environmental Protection Agency (USEPA) codified at Title 40 of the Code of Federal Regulations (40 C.F.R.), Parts 124, 144, 146, 147, and 148,

Environmental Disposal Systems, Inc. of Birmingham, Michigan

the permittee, is hereby authorized to operate an existing Class I hazardous waste injection well located in Michigan, Wayne County, T3S, R9E, Section 12, SE Quarter Section, subject to the conditions of this permit. The injection zone, or zone which will contain the hazardous constituents, for this well includes the Mount Simon, Eau Claire, Franconia-Dresbach, Trempealeau, Glenwood, and lower Black River Formations between the depths of 3,369 and 4,550 feet. Injection is permitted into the interval of the Mt. Simon, Eau Claire, and Franconia-Dresbach Formations between the depths of 3,937 and 4,550 feet upon the express condition that the permittee meets the restrictions set forth in this permit. The designated confining zone for this injection well includes the upper Black River, Trenton, and Utica Formations. Injection shall not commence until the operator has received written authorization from the Director of the Water Division of USEPA Region 5, to inject.

References to 40 C.F.R. are to all regulations that are in effect on the date that this permit becomes effective. The following attachments are incorporated into this permit: A, B, C, D, and E.

This permit shall become effective on _____, and shall remain in full force and effect during the life of the permit, unless: 1) the statutory provisions of Section 3004(f), (g) or (m) of the Resource Conservation and Recovery Act, 42 U.S.C. § 6924(f), (g) or (m), ban or otherwise condition the authorization in this permit; 2) the USEPA promulgates rules pursuant to these sections which withdraw or otherwise condition the authorization in this permit; or 3) this permit is otherwise revoked, terminated, modified or reissued pursuant to 40 C.F.R. §§ 144.39, 144.40, or 144.41. This permit and the authorization to inject shall expire at midnight, _____, unless terminated.

Signed and dated: _____

DRAFT

Jo Lynn Traub
Director, Water Division

TABLE OF CONTENTS

	<u>Page No.</u>
AUTHORITY	cover page
PART I. GENERAL PERMIT COMPLIANCE	2
A. EFFECT OF PERMIT	2
B. PERMIT ACTIONS	2
1. Modifications, Revocation, Reissuance and Termination	2
2. Transfer	3
C. SEVERABILITY	3
D. CONFIDENTIALITY	3
E. DUTIES AND REQUIREMENTS	3
1. Duty to Comply	3
2. Penalties for Violations of Permit Conditions	3
3. Continuation of Expiring Permits	4
4. Need to Halt or Reduce Activity Not a Defense	5
5. Duty to Mitigate	5
6. Proper Operation and Maintenance	5
7. Duty to Provide Information	5
8. Inspection and Entry	5
9. Records	6
10. Monitoring	7
11. Signatory Requirements	7
12. Reporting Requirements	7
13. Hazardous Waste Requirements	9
F. CLOSURE	9
1. Closure Plan	9
2. Plugging and Abandonment Plan	9
3. Revision of Closure Plan	9
4. Notice of Intent to Close	9
5. Temporary Disuse	10
6. Standards for Well Closure	10
G. POST-CLOSURE CARE	10
1. Post-Closure Plan	10
2. Duration of Post-Closure Period	10
3. Post-Closure Corrective Action	11
4. Post-Closure Groundwater Monitoring	11
5. Survey Plat	11
6. Notice to State and Local Authorities	11
7. Retention of Records	11
8. Notice in Deed to Property	11
9. Financial Responsibility for Post-Closure Care	11
H. MECHANICAL INTEGRITY	12
1. Standards	12
2. Periodic Mechanical Integrity Testing	12
3. Prior Notice and Reporting	13
4. Gauges	13
5. Loss of Mechanical Integrity	13
6. Testing on Request from Director	13

I. FINANCIAL RESPONSIBILITY	13
1. Financial Responsibility	13
2. Insolvency	14
3. Notification	14
4. Establishing Other Coverage	15
J. CORRECTIVE ACTION	15
1. Compliance	15
2. Corrective Action Under 40 C.F.R. §146.64	15
3. Prohibition of Movement of Fluids into USDWs	15
4. Corrective Action Under Section 3004(u) of RCRA	15
K. HAZARDOUS WASTE INJECTION RESTRICTIONS UNDER 40 C.F.R. Part 148	
1. Further Requirements	15
2. Injection Limitations	15
3. Exemption/Permit Modifications	16
4. False Information	16
5. Petition Termination	16
6. Petition Renewal	16
L. COMMENCING INJECTION	17
1. Information To Be Submitted	17
2. Director Inspection	17
3. Mechanical Integrity Demonstration	17
4. Warning and Shut-off System	18
5. Notice to Inject	18
M. PERMIT REOPENER	18
PART II. WELL SPECIFIC CONDITIONS	19
A. CONSTRUCTION	19
1. Siting	19
2. Casing and Cementing	19
3. Tubing and Packer Specifications	19
4. Wellhead Specification	19
B. OPERATIONS	19
1. Injection Pressure Limitation	19
2. Additional Injection Limitation	19
3. Annulus Fluid and Pressure	19
4. Warning and Shut-off System	20
5. Precautions to Prevent Well Blowouts	20
C. MONITORING	21
1. Sampling Point	21
2. Continuous Monitoring Devices	21
3. Waste Analysis Plan	21
4. Ambient Monitoring	21
5. Compatibility of Well Materials	21
D. REPORTING REQUIREMENTS	22
1. Monthly Reports	22
2. Quarterly Reports	23
3. Annual Reports	23
4. Reports on Well Tests and Workovers	24
PART III. ATTACHMENTS	25
A. SUMMARY OF OPERATING, MONITORING AND REPORTING REQUIREMENTS	

- B. CLOSURE PLAN
- C. CONSTRUCTION DETAILS
- D. GENERAL WASTE CHARACTERISTICS
- E. LIST OF APPROVED SOURCES

PART I
GENERAL PERMIT COMPLIANCE

A. EFFECT OF PERMIT

The permittee is allowed to engage in underground injection in accordance with the conditions of this permit. Notwithstanding any other provisions of this permit, the permittee authorized by this permit shall not construct, operate, maintain, convert, plug, abandon, or conduct any other injection activity in a manner that allows the movement of injection, annulus or formation fluids into underground sources of drinking water (USDWs). The objective of this permit is to prevent the introduction of contaminants into an USDW if the presence of that contaminant may cause a violation of any primary drinking water regulation under 40 C.F.R. Part 141 or may otherwise adversely affect the health of persons. Any underground injection activity not specifically authorized in this permit is prohibited. Compliance with this permit during its term constitutes compliance, for purposes of enforcement, with Part C of the Safe Drinking Water Act (SDWA). Such compliance is not a defense to any action brought under Section 1431 of the SDWA, or any other common or statutory law other than Part C of the SDWA. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations. Nothing in this permit shall relieve the permittee of any duties under applicable regulations.

This permit does not relieve owners and operators of hazardous waste injection wells of their obligation to comply with any additional regulations or requirements under the Resource Conservation and Recovery Act (RCRA). This permit does not authorize any above ground generating, handling, storage, treatment or disposal facilities. Such activities must receive authorization under the regulations promulgated pursuant to Part C of RCRA, if required.

B. PERMIT ACTIONS

1. Modification, Revocation, Reissuance and Termination - The Director of the Water Division of Region 5 of the USEPA, (the Director), may, for cause upon her initiative or upon request from any interested person, including the permittee, modify, revoke and reissue, or terminate this permit in accordance with 40 C.F.R. §§124.5, 144.12, 144.39, and 144.40. Also, the permit is subject to minor modifications for cause as specified in 40 C.F.R. §144.41. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes,

or anticipated noncompliance on the part of the permittee does not stay the applicability or enforceability of any permit condition.

2. Transfer of Permits - This permit is not transferable to any person except in accordance with 40 C.F.R. §144.38.

C. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected.

D. CONFIDENTIALITY

In accordance with 40 C.F.R. Part 2 and 40 C.F.R. §144.5, any information submitted to the USEPA pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of submission, USEPA may make the information available to the public without further notice. If a claim is asserted, the validity of the claim will be assessed in accordance with the procedures in 40 C.F.R. Part 2, Public Information. Claims of confidentiality for the following information will be denied:

1. The name and address of the permittee; and
2. Information which deals with the existence, absence or level of contaminants in drinking water.

E. DUTIES AND REQUIREMENTS

1. Duty to Comply - The permittee shall comply with all applicable Underground Injection Control (UIC) Program regulations and conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with 40 C.F.R. §144.34. Any permit noncompliance constitutes a violation of the SDWA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or for denial of a permit renewal application. Such noncompliance may also be grounds for enforcement action under RCRA.
2. Penalties for Violations of Permit Conditions - Any person who violates a permit requirement is subject to civil penalties and other enforcement action under the SDWA and may be subject to such

actions pursuant to the RCRA. Any person who willfully violates permit conditions may be subject to criminal prosecution.

3. Continuation of Expiring Permits

- (a) Duty to Reapply - To continue an activity regulated by this permit after the expiration date of this permit, the permittee must submit a complete application for a new permit at least 180 calendar days before this permit expires.
- (b) Permit Extensions - The conditions of an expired permit may continue in force in accordance with 5 U.S.C. §558(c) and 40 C.F.R. §144.37.
- (c) Effect - Permits continued under 5 U.S.C. §558(c) and 40 C.F.R. §144.37 remain fully effective and enforceable.
- (d) Enforcement - When the permittee is not in compliance with the conditions of the expiring or expired permit, the Director may choose to do any or all of the following:
 - (1) Initiate enforcement action based upon the permit which has been continued;
 - (2) Issue a notice of intent to deny the new permit. If the permit application is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operation without a permit;
 - (3) Issue a new permit under 40 C.F.R. Part 124 with appropriate conditions; or
 - (4) Take other actions authorized by the UIC regulations.
- (e) State Continuation - A USEPA-issued permit does not continue in force beyond its expiration date under Federal law if at that time a State has primary enforcement responsibility under the SDWA. A State authorized to administer the UIC program may continue either USEPA- or State-issued permits until the effective date of the new permits, if State law allows. Otherwise, the facility or activity is operating without a permit from the time of expiration of the old permit to the effective date of the State-issued new permit. Furthermore, if the State does not continue the expired USEPA permit upon obtaining primary enforcement responsibility, the permittee must obtain a new State permit or be authorized to

inject by State rule and failure to do so will result in unauthorized injection.

4. Need to Halt or Reduce Activity Not a Defense - It shall not be a defense for the permittee in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
5. Duty to Mitigate - The permittee shall take all timely and reasonable steps necessary to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.
6. Proper Operation and Maintenance - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit.
7. Duty to Provide Information - The permittee shall furnish to the Director, within a time specified, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request within a time specified, copies of records required to be kept by this permit.
8. Inspection and Entry - The permittee shall allow the Director or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 - (a) Enter, upon the permittee's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this permit;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - (c) Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

- (d) Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the SDWA, any substances or parameters at any facilities, equipment or operations regulated or required under this permit.

9. Records

- (a) The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original chart recordings for continuous monitoring instrumentation and copies of all reports required by this permit for a period of at least five years from the date of the sample, measurement or report.
- (b) The permittee shall maintain records of all data required to complete the permit application form for this permit and any supplemental information submitted under 40 C.F.R. §§144.27, and 144.31 for a period of at least five years from the date the application was signed.
- (c) The permittee shall retain records concerning the nature and composition of all injected fluids until three (3) years after the completion of plugging and abandonment.
- (d) The retention periods specified in Part I(E)(9)(a) through (c) of this permit may be extended by request of the Director at any time. The permittee shall continue to retain records after the retention periods specified in Part I(E)(9)(a) through (c) of this permit or any requested extension thereof unless the permittee delivers the records to the Director or obtains written approval from the Director to discard the records.
- (e) Records of monitoring information shall include:
 - (1) The date, exact place, and time of sampling or measurements;
 - (2) The individual(s) who performed the sampling or measurements;
 - (3) A precise description of both sampling methodology and the handling of samples;
 - (4) The date(s) analyses were performed;

- (5) The individual(s) who performed the analyses;
 - (6) The analytical techniques or methods used; and
 - (7) The results of such analyses.
10. Monitoring - Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The permittee shall use the methods described in Appendix I of 40 C.F.R. Part 261, or an equivalent method approved by the Director, to take representative samples. Monitoring results shall be reported at the intervals contained in Part II(D), Part III(A) and Part III(E) of this permit.
- (a) Monitoring of the nature of injected fluids shall comply with applicable analytical methods cited and described in Tables IA, IB, and IC of 40 C.F.R. §136.3 or in Appendix III of 40 C.F.R. Part 261 or in certain circumstances by other methods that have been approved by the Director.
 - (b) Sampling and analysis shall comply with the specifications of the Waste Analysis Plan required in Part II(C)(3) of this permit.
11. Signatory Requirements - All reports required by the permit, and other information when so requested by the Director, shall be signed and certified in accordance with 40 C.F.R. §144.32.
12. Reporting Requirements
- (a) Planned Changes - The permittee shall give written notice to the Director, as soon as possible, of any planned physical alterations or additions to the permitted facility.
 - (b) Anticipated Noncompliance - The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.
 - (c) Compliance Schedules - The permittee shall submit reports of compliance or noncompliance with, or any progress reports on, interim and final requirements in any compliance schedule of this permit no later than 30 calendar days following each schedule date.
 - (d) Twenty-four Hour Reporting

- (1) The permittee shall report to the Director any permit noncompliance which may endanger health or the environment. See, for example Part I(H)(5) of this permit. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. Such reports shall include, but not be limited to, the following information:
 - (i) Any monitoring or other information which indicates that any contaminant may cause an endangerment to an USDW; or
 - (ii) Any noncompliance with a permit condition, or malfunction of the injection system, which may cause fluid migration into or between USDWs; or
 - (iii) Any failure to maintain mechanical integrity.
- (2) A written submission shall also be provided within five working days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance.
- (e) Other Noncompliance - The permittee shall report all other instances of noncompliance not otherwise reported at the time monitoring reports are submitted. The reports shall contain the information listed in Part I(E)(12)(d)(2) of this permit.
- (f) Other Information - When the permittee becomes aware of its failure to submit any relevant facts in the permit application or that it submitted incorrect information in a permit application or in any report to the Director, the permittee shall submit such facts or corrected information within ten calendar days, unless a longer time period is approved by the Director.
- (g) Report on Permit Review - Within 30 calendar days of receipt of this permit, the permittee shall certify to the Director that one of its officers has read and is personally familiar with all terms and conditions of this permit.

13. Hazardous Waste Treatment, Storage, and Disposal Facility Requirements - The permittee shall comply with the requirements for wells injecting hazardous waste listed at 40 C.F.R. §144.14.

F. CLOSURE

1. Closure Plan - A plan for closure of the well that includes assurance of financial responsibility as required in 40 C.F.R. §144.52(a)(7) and includes the information, relating to plugging and abandonment required under 40 C.F.R. §146.71(a)(4), is at Part III(B) of this permit. The implementation of the Closure Plan is a condition of this permit; however, the permittee must receive the approval of the Director to proceed before implementing this plan. The obligation to implement the Closure Plan survives the termination of this permit or the cessation of injection activities.
2. Plugging and Abandonment - The permittee must receive the approval of the Director before plugging the well and shall plug and abandon the well consistent with 40 C.F.R. 146.71, as provided in the Closure Plan at Part III(B) of this permit. Within 60 calendar days after plugging the well, the permittee shall submit a Closure Report to the Director. The report shall be certified as accurate by the permittee and by the person who performed the plugging operation (if other than the permittee), and shall consist of either:
 - (a) A statement that the well was plugged in accordance with the Closure Plan previously approved by the Director; or
 - (b) If the actual closure differed from the approved plan, a statement defining the actual closure and explaining why the Director should approve such deviation. If the Director determines that a deviation from a previously approved plan may endanger USDWs, the permittee shall replug the well as required by the Director.
3. Revision of Closure Plan - If the permittee finds it necessary to change the Closure Plan, it shall submit a revised plan to the Director for approval with the next monthly report.
4. Notice of Intent to Close - The permittee shall notify the Director at least 60 calendar days before closure of the well, unless a shorter notice period is approved by the Director. The permittee shall submit any proposed significant revision to the method of closure reflected in the Closure Plan for approval by the Director at least 60 calendar days before closure, unless a shorter period

of time is approved by the Director.

5. Temporary Disuse - If the permittee wishes to cease injection for longer than 24 months, it may keep the well open only if it:
 - (a) Has received authorization from the Director; and
 - (b) Has described actions or procedures, satisfactory to the Director, that he or she will take to ensure that the well will not endanger USDWs during this period. These actions or procedures shall include compliance with the technical requirements applicable to active injection wells unless waived by the Director.
6. Standards for Well Closure - Prior to closing the well, the permittee shall:
 - (a) Observe and record the pressure decay for a time specified by the Director and report this information to the Director;
 - (b) Conduct mechanical integrity tests as requested by the Director to ensure integrity of casing and cement left in the ground after closure. Required testing methods may include any or all of those listed in 40 C.F.R. §146.71(d)(2); and
 - (c) Flush the well with a buffer fluid.

G. POST-CLOSURE CARE

The permittee shall comply with the requirements for post-closure care and financial responsibility for post-closure care at 40 C.F.R. §§ 146.72 and 146.73.

1. Post-Closure Plan - The permittee shall comply with the approved plan for post-closure maintenance and monitoring. This plan includes the information required by 40 C.F.R. §146.72(a) and demonstrates how each of the applicable requirements of 40 C.F.R. §146.72(b) will be met. The approved post-closure plan is part of the permit file for this permit and the permittee shall maintain and comply with this plan as if it were fully set forth in the permit. The obligation to implement the post-closure plan survives the termination of this permit or the cessation of injection activities.
2. Duration of Post-Closure Period - The post-closure care period shall continue at least until all of the requirements of the approved post-closure plan and of 40 C.F.R. §146.72 have been met.

Prior to the time that the post-closure care period is due to expire, the Director may extend the post-closure care period if she finds that the extended period is necessary to protect the health of persons or to protect a USDW.

3. Post-Closure Corrective Action - The permittee shall continue and complete any cleanup action required under 40 C.F.R. §146.64.
4. Post-Closure Groundwater Monitoring - The permittee shall continue to conduct any groundwater monitoring required under this permit until pressure in the injection zone decays to the point that the well's cone of influence no longer intersects the hydrostatic head of the lowermost USDW as identified in the permit file for this permit, or as defined by the Director. The permittee shall estimate the time for pressure in the injection zone to decay to this point and shall include this estimate in the Post-Closure Plan. The Director may extend the period of post-closure monitoring if she determines that it is necessary to protect the health of persons or to protect a USDW.
5. Survey Plat - The permittee shall submit a survey plat to the local zoning authority designated by the Director as required by 40 C.F.R. §146.72(b)(3) and submit a copy to the Director.
6. Notification to State and Local Authority - The permittee shall provide notification and information to State and local authorities as required by 40 C.F.R. §146.72(b)(4).
7. Retention of Records - The permittee shall retain, for a period of three years following well closure, the records specified by 40 C.F.R. §146.72(b)(5), and shall deliver those records to the Director at the end of the retention period.
8. Notice in Deed to Property - The permittee must record, in accordance with State law, a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity provide any potential purchaser of the property with the information listed in 40 C.F.R. §146.72(c).
9. Financial Responsibility for Post-Closure Care - The permittee shall submit an approved demonstration of financial responsibility for post-closure care, as required in 40 C.F.R. §146.73, to the Director prior to the commencement of injection. The obligation to maintain financial responsibility for post-closure care survives the termination of this permit or the cessation of injection.

H. MECHANICAL INTEGRITY

1. Standards - The injection well must have and maintain mechanical integrity consistent with 40 C.F.R. §146.8(a)(1) and (2). Mechanical integrity demonstrations must be witnessed by an authorized representative of the Director to satisfy the requirements of 40 C.F.R. §146.8.
2. Periodic Mechanical Integrity Testing - The permittee shall conduct the mechanical integrity testing as follows:
 - (a) Long string casing, injection tubing and annular seal shall be tested by means of an approved pressure test in accordance with 40 C.F.R. §146.8(a)(1) at least once every twelfth month beginning with the date of the last approved demonstration and in the following circumstances: 1) whenever there has been a well workover in which tubing is removed from the well; 2) the packer is reset; or 3) when loss of mechanical integrity becomes suspected during operation. The pressure test shall be performed at 100 psig over the maximum injection pressure set in Part III (A) or 500 psig, whichever is greater;
 - (b) The bottom-hole cement shall be tested by means of an approved radioactive tracer survey at least once every twelfth month beginning with the date of the last approved demonstration;
 - (c) An approved temperature, noise, oxygen activation, or other approved log shall be run at least once every 60 months, beginning with the date of the last approved demonstration to determine the absence of upward fluid migration. The Director may require such tests whenever the well is worked over. The permittee must submit logging procedures to the Director for approval before running logs for the purpose of meeting this requirement;
 - (d) An approved casing inspection log shall be run before injection commences and whenever the permittee conducts a workover in which the injection tubing is pulled. The permittee may request the Director to waive this requirement if a satisfactory casing inspection log has been run within the previous five years; and
 - (e) The permittee may use any other test approved by the Director in accordance with the procedures in 40 C.F.R. §146.8(d).

3. Prior Notice and Reporting - The permittee shall notify the Director in writing of his or her intent to demonstrate mechanical integrity at least 30 calendar days prior to such demonstration. At the discretion of the Director a shorter time period may be allowed. Failure to provide this prior notice will invalidate any successful mechanical integrity demonstration unless the shorter notice time was approved by the Director. Reports of mechanical integrity demonstrations which include logs must include an interpretation of results by a knowledgeable log analyst. The permittee shall report the results of a mechanical integrity demonstration within 30 calendar days after completion thereof.
4. Gauges - The permittee shall calibrate all gauges used in mechanical integrity demonstrations to an accuracy of not less than one-half (0.5) percent of full scale, prior to each required test of mechanical integrity. A copy of the calibration certificate shall be submitted to the Director or his or her representative at the time of demonstration and every time the gauge is calibrated. The gauge shall be marked in no greater than 5 psi increments. Failure to calibrate the gauges will invalidate any successful mechanical integrity demonstration.
5. Loss of Mechanical Integrity - If the permittee or the Director finds that the well fails to demonstrate mechanical integrity during a test, or fails to maintain mechanical integrity during operation, or that a loss of mechanical integrity as defined by 40 C.F.R. §146.8(a)(1) and (2) is suspected during operation, the permittee shall halt the operation immediately and follow the reporting requirements as directed in Part I(E)(12) of this permit. The permittee shall not resume operation until mechanical integrity is demonstrated and the Director gives written approval to recommence injection.
6. Mechanical Integrity Testing on Request From Director - The permittee shall demonstrate mechanical integrity at any time upon written notice from the Director.

I. FINANCIAL RESPONSIBILITY

1. Financial Responsibility - The permittee shall maintain financial responsibility and resources to comply with closure and post-closure requirements of this permit, in a manner consistent with 40 C.F.R. §§ 144.52 (a)(7), 144.60 through 144.70, and 146.73. A copy of the approved financial assurance mechanism for closure costs is in Part III(B) of this permit. The permittee shall update this mechanism to include post-closure costs before injection commences.
 - (a) Pursuant to 40 C.F.R. §§ 144.62(a), 146.71, and 146.73, the

permittee must maintain a written cost estimate in current dollars for the Closure Plan and Post-Closure Plan as specified in 40 C.F.R. §§ 146.10, 146.72, and 146.73. The closure and post-closure cost estimate at any point in the life of the facility operation must equal the maximum cost of closure and post-closure at that time.

- (b) Pursuant to 40 C.F.R. §§ 144.62(b) and 146.73, the permittee must adjust the cost estimate of closure and post-closure for inflation within 30 calendar days after each anniversary of the first estimate. The permittee shall follow the method described in 40 C.F.R. §144.62(b) or other method approved by the Director.
 - (c) The permittee must revise the closure and post-closure cost estimate whenever a change in the Closure Plan or Post-Closure Plan increases the cost of closure.
 - (d) If the revised closure and post-closure cost estimate exceeds the current amount of the financial assurance mechanism, the permittee shall submit a revised mechanism to cover the increased cost within 90 calendar days after the revision specified in Part I(I)(1)(b) and (c) of this permit.
 - (e) The permittee must keep on file at the facility a copy of the latest closure and post-closure cost estimate prepared in accordance with 40 C.F.R. §§ 144.62, 146.72, and 146.73, during the operating life of the facility.
2. Insolvency - The permittee must notify the Director within ten business days of any of the following events:
- (a) The bankruptcy of the trustee or issuing institution of the financial mechanism; or
 - (b) Suspension or revocation of the authority of the trustee institution to act as trustee; or
 - (c) Loss by the institution issuing the financial mechanism of its authority to issue such an instrument.
3. Notification - The permittee must notify the Director by certified mail of the commencement of voluntary or involuntary proceedings under Title 11 (Bankruptcy), U.S. Code naming the permittee as debtor, within ten business days after the commencement of the proceeding. A guarantor of a corporate guarantee must make such a notification if he or she is named as debtor, as required under the terms of the guarantee.

4. Establishing Other Coverage - The permittee must establish other financial assurance or liability coverage acceptable to the Director, within 60 calendar days of the occurrence of the events identified in Part I(I)(2) or (3) of this permit.

J. CORRECTIVE ACTION

1. Compliance - The permittee shall comply with 40 C.F.R. §146.64.
2. Corrective Action - A plan for corrective action under 40 C.F.R. §146.64 is not necessary at this time because no improperly plugged, completed, or abandoned wells which penetrate the confining zone for this well are known to be present in the Area of Review (AOR). Within 30 days of written notification from the Director that there are improperly plugged, completed, or abandoned wells or wells for which adequate plugging or completion information is unavailable present in the AOR which penetrate the confining zone for this well, the permittee shall submit a Corrective Action Plan with a schedule for its implementation for approval by the Director. The AOR is specified in the administrative record for this permit.
3. Prohibition of Movement of Fluids into USDWs - Should upward migration of fluids through the confining zone of this permitted well be discovered within the AOR for this well, the permittee shall immediately cease injection into this well until the situation has been corrected and reauthorization has been given by the Director. The permittee shall immediately notify the USEPA and the Michigan Department of Environmental Quality (MDEQ) within 24 hours of the discovery of the problem and submit written confirmation transmitted by letter within five days. This includes but is not limited to fluid migration through any previously unknown, improperly plugged or unplugged well due to the injection of permitted fluids, or due to problems with the casing of this well due to the injection of permitted fluids.
4. Corrective action under Section 3004(u) of RCRA - The permittee shall comply with corrective action requirements for all solid waste management units at this facility, as required by any RCRA permit issued to this facility.

K. INJECTION OF RESTRICTED HAZARDOUS WASTES

1. Further Requirements - The permittee shall comply with all regulations set forth under 40 C.F.R. Part 148. The permittee may

continue to inject the restricted hazardous wastes specified in Part III(E) of this permit as long as it meets all other requirements of this permit and applicable regulations and at least one of the following remains in effect:

- (a) an extension of the effective date of a prohibition has been granted pursuant to 40 C.F.R. §148.4 with respect to such waste;
 - (b) the exemption granted in response to a petition filed under 40 C.F.R. §148.20 to allow injection of restricted wastes, with respect to those wastes and wells covered by the exemption, remains in effect, and all conditions of the exemption are met;
 - (c) land disposal ban dates have not been promulgated for the hazardous constituents of the wastestream; or
 - (d) the concentration of hazardous constituents in each RCRA hazardous waste are below the treatment standards for each specific RCRA waste code found at 40 C.F.R. §268.43 - Table CCW.
2. Injection Limitations - Characteristics and concentrations of hazardous constituents of injected waste shall not exceed any limits listed in Part III(E) of this permit. The monthly average injection rate for the permitted well shall not exceed the limitation listed in Part III(A) of this permit.
3. Exemption/Permit Modifications - This permit may be modified to permit injection of wastes other than those listed in Part III(E) of this permit or wastes in concentrations in excess of those listed in Part III(E) of this permit provided an exemption to statutory restrictions has been obtained pursuant to the provisions of 40 C.F.R. Part 148.
4. False Information - The permittee must notify the Director within 48 hours after obtaining knowledge that information submitted in support of a request for exemption under 40 C.F.R. Part 148 is false, inaccurate, or incomplete.
5. Petition Termination - Upon written notification from the Director that an exemption granted under 40 C.F.R. §148.20 has been terminated, the permittee shall immediately cease injection of all prohibited hazardous wastes.
6. Petition Renewal - The Director may require a new or updated 40 C.F.R. Part 148 demonstration prior to renewing this permit if

the Director has determined that the basis for granting the exemption to the statutory restriction is affected by new information.

L. COMMENCEMENT OF INJECTION

Injection into the well is prohibited until the permittee obtains written approval from the Director. Approval will not be granted until the following conditions are met:

1. Information to be Submitted: The operator has submitted and obtained the Director's written approval of the following documents:
 - (a) copies of all data, well tests, and logs gathered during the drilling and construction of the well;
 - (b) a notice of completion of construction using EPA Form 7520-9, submitted by the permittee to the Permit Writer, by certified mail with return receipt requested, after construction is completed;
 - (c) a groundwater monitoring plan;
 - (d) a corrosion monitoring plan;
 - (e) a hydrogeologic compatibility determination;
 - (f) an updated closure and post-closure plan if requested by the Director based on information gathered during the drilling and completion process;
 - (g) updated financial assurance to cover the full closure and post-closure costs; and
 - (h) a submission pursuant to 40 C.F.R. Part 148 as detailed in Part I(K) above (for wastes banned under 40 C.F.R. Part 148).
2. Director Inspection - All well monitoring equipment is operational and has been inspected by the USEPA or its representative in accordance with 40 C.F.R. §144.51(m)
3. Mechanical Integrity Demonstration - Mechanical integrity of the well has been demonstrated in accordance with 40 C.F.R. §146.8(a)(1) and (2) and with Part I(H)(1) and (2) of this permit.

4. Warning and Shut-off Systems - The automatic warning and shut-off system required in Part II(B)(4) of this permit must pass a test witnessed by an authorized representative of the Director subjecting it to simulated failure conditions. The permittee must certify that a trained operator will be on site at all times when the well is operating to implement the system.
5. Notice to Inject - the permittee is prohibited from commencing injection until it receives written notice from the Director that the well has been constructed in compliance with this permit and that Part III(E) has been modified to add any approved sources.

M. PERMIT REOPENER

This permit may be reopened after an exemption to the restricted hazardous waste land disposal prohibition has been issued or modified under 40 C.F.R. Part 148 to incorporate any conditions which may have been attached to such exemption.

PART II
WELL SPECIFIC CONDITIONS FOR UIC PERMITS

A. CONSTRUCTION

1. Siting - The injection well shall inject only into the formation and depths listed on the cover page of this permit. At no time shall injection occur into a formation which is above the lowermost formation containing, within one quarter mile of the well bore, an underground source of drinking water.
2. Casing and Cementing - Notwithstanding any other provisions of this permit, the permittee shall case and cement the well to prevent the movement of fluids into or between USDWs for the expected life of the well. The casing and cement used in the construction of this well are shown in Part III(C) of this permit.
3. Tubing and Packer Specifications - The permittee shall inject only through tubing with a packer set within the long string casing within 100 feet above the top of the injection zone. The tubing and packer used in the well are represented in engineering drawings contained in Part III(C) of this permit.
4. Wellhead Specification - The permittee shall maintain a female coupling and valve on the wellhead, to be used for independent injection pressure readings.

B. OPERATIONS

1. Injection Pressure Limitation - Except during stimulation, the permittee shall not cause or permit the injection pressure at the wellhead to exceed the maximum limitation which is specified in Part III(A) of this permit or initiate fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures or propagate existing fractures in the confining zone or cause the movement of injection or formation fluids into a USDW.
2. Additional Injection Limitation - No substances other than those identified in Part III(E) of this permit shall be injected. The permittee shall submit a certified statement attesting to compliance with this requirement at the time of the annual report.
3. Annulus Fluid and Pressure - The permittee shall fill the annulus between the tubing and the long string casing with a fluid approved by the Director and identified in the administrative record of this permit. The permittee shall submit any proposed change in the annulus fluid for the approval of the Director before

implementation. The permittee shall maintain a positive pressure on the annulus over the entire length of the tubing as specified in Part III(A) of this permit, except during workovers or times of annulus maintenance.

4. Warning and Shut-off System - The permittee shall install an automatic warning and automatic shut-off system prior to the commencement of injection. The permittee shall continuously operate and maintain the system after the commencement of injection to stop injection within 30 minutes of any of the following situations:
 - (a) Pressure changes in the annulus or annulus/tubing differential signifying or identifying possible deficiencies in mechanical integrity; or
 - (b) Injection pressure, annulus pressure, or annulus/tubing differential pressure reaches the pressure limits as specified in Part III(A) of this permit.

A trained operator must be on site at all times during operation of the well. The permittee must test the warning system and shut-off system prior to receiving authorization to inject, and at least once every twelfth month after the last approved demonstration. These tests must involve subjecting the system to simulated failure conditions and must be witnessed by the Director or his or her representative.

5. Precautions to Prevent Well Blowouts
 - (a) The permittee shall maintain on the well at all times a pressure that will prevent the return of the injection fluid to the surface. If there is gas formation in the injection zone near the well bore, such gas shall be prevented from entering the casing or tubing. The well bore shall be filled with a high specific gravity fluid during workovers to maintain a positive (downward) gradient and/or a plug shall be installed that can resist the pressure differential. A blowout preventer shall be kept in proper operational status during workovers which involve tubing or packer removal.
 - (b) Where the injected wastes have the potential to react with the injection formation to generate gases, the permittee shall follow the procedures below to assure that a backflow or blowout does not occur:
 - (i) Limit the temperature, pH or acidity of the injected waste; and

- (ii) Develop procedures necessary to assure that pressure imbalances do not occur.

C. MONITORING

1. Sampling Point - The injection fluid samples shall be taken at the sampling locations specified in the approved Waste Analysis Plan for this permit.
2. Continuous Monitoring Devices - The permittee shall install continuous monitoring devices and use them to monitor injection pressure, injection volume, sight glass level, pH, flow rate and the pressure on the annulus between the tubing and the long string of casing. The monitoring results shall be submitted to the Director as specified in Part II(D) and Part III(A) of this permit and maintained for USEPA's inspection at the facility.
3. Waste Analysis Plan - The permittee shall comply with the approved Waste Analysis Plan (the Plan) which describes the procedures used to monitor the nature of injected fluids and the procedures which will be carried out to comply with Part I(E)(10) of this permit. The Plan is a part of the permit file and compliance with this Plan is a condition of the permit. A copy of the approved Plan shall be kept at the facility. The permittee shall assure that the plan remains accurate and the analyses remain representative and shall so certify at the time of the annual report.
4. Ambient Monitoring - At least every twelfth month, the permittee shall, pursuant to 40 C.F.R. §146.68(e), monitor the pressure buildup in the injection interval, including, at a minimum, a shut down of the well for a time sufficient to conduct a valid observation of the pressure fall-off curve. The permittee shall submit plans for this testing at least 30 days before the testing is planned, and is prohibited from performing the testing unless the Director has given written approval.
5. Compatibility of Well Material - The permittee shall continuously monitor corrosion of the construction material(s) by a method approved by the Director. Authorization to inject shall not be given until the corrosion monitoring plan has been approved by the Director. The approved corrosion monitoring plan shall be part of the permit file for this permit and the permittee shall maintain and comply with the plan as if it were fully set forth in the permit. Continuous corrosion monitoring shall be operational at the time of the commencement of injection. The permittee shall report loss of mass, thickness, cracking, pitting and other signs of corrosion at least quarterly.

D. REPORTING REQUIREMENTS

The permittee shall submit all required reports to the Director at the following address no later than the end of the month following the reporting period. Monitoring reports under Part II(D)(1), (2), and (3) are not required until the initial authorization to inject has been granted or otherwise required by the Director:

United States Environmental Protection Agency
Region 5, WU-16J
77 West Jackson Blvd.
Chicago, Illinois 60604-3590
ATTN: UIC Branch, DI Section

1. Monthly Reports. The permittee shall submit monthly reports of the following information:
 - (a) Results of the injection fluid analyses specified in Part III(A) and (E) of this permit and the approved Waste Analysis Plan as recorded in the permit file for this permit. In reporting fluid analyses, the permittee shall identify the waste components of the waste stream by their common name, chemical name, structure and concentration, or as approved by the Director.
 - (b) A tabulation of maximum injection pressure, maximum and minimum sight glass levels, maximum and minimum annulus pressure, injectate pH, flow rate, and minimum differential between simultaneous measurements of injection pressure and annulus pressure for each day of the month;
 - (c) Appropriately scaled graphs representing the continuous monitoring as required in Part II(C)(2) of this permit showing injection pressure, annulus pressure, flow rate, pH injection volume, and sight glass levels. One graph must include, at a minimum, daily maximum injection pressure and daily average flow rate on a single monthly chart. A second graph must display the daily maximum and minimum sight glass levels;
 - (d) A statement of the total volumes of fluid injected to date, in the current calendar year and in the current calendar month. If non-waste-water (for instance, a continuous flush of water for dilution) is injected, the total, annual, and monthly injected volumes for wastewater only, as well as total injected volume must be reported;
 - (e) A tabulation of the dates, amounts and types of liquid added to or removed from the annulus system during the month, and

the cumulative additions and the cumulative subtractions for the current month and each of the past 12 months; and

- (f) Any noncompliance with conditions of this permit, including but not limited to:
 - (i) Any event that exceeds operating parameters for annulus pressure or injection pressure or annulus/tubing differential as specified in the permit; or
 - (ii) Any event which triggers an alarm or shutdown device required in Part II(B)(4) of this permit.
- 2. Quarterly Reports - The permittee shall report the following at least every quarter. Quarterly reporting periods shall begin on the first day of January, April, July, and October of each year:
 - (a) Results of the injection fluid analyses specified in Parts III(A) and (E) of this permit, if applicable. In reporting fluid analyses, the permittee shall identify the waste components of the waste stream by their common name, chemical name, structure and concentration, or as approved by the Director. Laboratory reports shall be submitted with the first monthly monitoring report following the close of the quarterly reporting period;
 - (b) The results of the continuous corrosion monitoring as stipulated in Part II(C)(5) of this permit;
 - (c) Any quarterly analyses of ground water monitoring wells at this facility; and
 - (d) Any other monitoring required on a quarterly basis.
- 3. Annual Reports - The permittee shall report the following at least every twelfth month from the effective date of this permit:
 - (a) Results of the injection fluid analyses specified in Part III(A) and (E) of this permit, and the approved Waste Analysis Plan as recorded in the permit file for this permit. In reporting fluid analyses, the permittee shall identify the waste components of the waste stream by their common name, chemical name, structure and concentration, or as approved by the Director. This report must include statements showing that the permittee has met the requirements of Part I(E)(10), Part II(B)(2), and Part II(C)(3) of this permit.
 - (b) Results of pressure fall-off testing required by 40 C.F.R.

§146.68(e) and of other annual requirements of the Groundwater Monitoring Plan which is a part of the permit file for this permit.

4. Reports on Well Tests and Workovers - Within 30 calendar days after the activity, the permittee shall report to the Director the results of demonstrations of mechanical integrity, any well workover, or results of other tests required by this permit. If the permittee does not make these reports within the required time, the Director may consider the tests to have been failed.

PART III
ATTACHMENTS

These attachments include, but are not limited to, permit conditions and plans concerning operating procedures, monitoring and reporting, as required by 40 C.F.R. Parts 144, 146 and 148. The permittee shall comply with these conditions and adhere to these plans as approved by the Director, as follows:

- A. SUMMARY OF OPERATING, MONITORING AND REPORTING REQUIREMENTS
- B. CLOSURE PLAN
- C. CONSTRUCTION DETAILS
- D. GENERAL WASTE CHARACTERISTICS
- E. LIST OF APPROVED SOURCES

